

DOCUMENT RESUME

ED 077 885

SP 006 569

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TITLE Analysis of the Delphi Survey 1972-1973.
PUB DATE [73]
NOTE 11p.; AOTE National Invitational Conference
Redesigning Teacher Education Pre-Conference Input

EDRS PRICE MF-\$0.65 HC-\$3.29
DESCRIPTORS *Evaluation Criteria; Evaluation Methods; Evaluation
Techniques; Questionnaires; *Teacher Characteristics;
*Teacher Evaluation; *Teacher Qualifications;
*Teaching Quality; Teaching Skills

IDENTIFIERS The Delphi Technique

ABSTRACT

This study utilized the Delphi Technique to identify desired competencies at four stages of professional education: entry, preservice, in-service, and teacher educator. As originally developed, the Delphi Technique consists of four steps: a) each participant is asked to write his opinion on a specific topic; b) each participant is asked to evaluate all of the opinions in terms of a given criterion; c) each participant receives the list and summary of responses and, if his view differs from most, is asked to revise his opinion or state why he will not; and d) each participant receives the final list and summary and is again asked to repeat or revise his opinion. For this study the Delphi procedure was used in questionnaires sent to educators asking them to list the desired competencies. These questionnaires were reviewed by a Delphi Committee, and a second and then a third questionnaire were prepared. (This paper includes detailed results from the questionnaires.) (JA)

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ANALYSIS OF THE
DELPHI SURVEY
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REDESIGNING TEACHER EDUCATION
PRE-CONFERENCE INPUT

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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SP 006 569

JUN 1 1973

REPORT OF THE DELPHI TECHNIQUE
Dr. Philip H. Richards

In planning this conference it was decided that we needed a base from which to zero in on the task of redesigning teacher education. We did not wish to spend our time debating the pros and cons of competency based teacher education nor the issues facing education. But rather to identify techniques of accomplishing some pre-identified competencies and/or techniques to solve some pre-identified issues facing education today. Our purpose was to establish techniques which may work for other competencies or issues.

The Delphi Technique, developed by the Rand Corporation as a means of obtaining greater consensus among experts dealing with problems of national defense, was selected as the basic procedure for identifying competencies.

The Delphi Technique consists of first selecting experts and then having each expert complete a series of questionnaires interspersed with controlled feedback on the responses of the other participants. This avoidance of face to face discussion eliminates some serious problems such as dominant individuals controlling the discussion; time lost discussing irrelevant or biased views and individual judgement being distorted by group pressure. This method provides anonymity to the participants, thus minimizing the influence of personal and political interests on their decisions.

As originally developed, the Delphi Technique consists of four steps:

First, each participant is asked to write his opinion on a specific topic.

Second, each participant is asked to evaluate all of the opinions in terms of a given criterion.

Third, each participant receives the list and a summary of the responses and if his view differs from the most frequent response, he is asked either to revise his opinion or to indicate his reason for not doing so.

Finally, each participant receives the list with an updated summary including minority opinions, and is asked to repeat or revise his own opinion.

A prime value of the Delphi Technique is that it simultaneously preserves the virtue of independent thought and permits the participant to tap the knowledge of others. In other words, the technique assures that opinions arrived at independently will nevertheless be informed opinions.

Specifically, the purpose of this study was to identify desired competencies at four stages (levels) of professional education. The four levels being: (1)Entry - the point at which a college student begins his professional training, (2)Pre-service - professional training prior to certification, (3)Inservice - for the practicing certified teacher, (4)Teacher Educator - the college instructor in professional teacher education.

The procedure that was selected as the best method to achieve the purpose was a modification of the Delphi Technique. This procedure included the following steps:

1. Requesting a selected national group of panelists to agree to participate in responding to three questionnaires within a four month time period. 144 persons representing many areas of education and geographic locations accepted this responsibility.
2. The first questionnaire listed the four levels asking for the panelist to list the desired competencies of each level. There was a 71.9% return.
3. The Delphi Committee analyzed the returns for each question and selected statements which best represented the total response. The committee attempted to include the same percentage of statements that seemed to be repetitious and also seemed to the committee to be non-competencies. The rationale was to try not to influence the outcome more than necessary.
4. The second questionnaire was prepared. It included: level 1 - 52 statements, level 2 - 63 statements, level 3 - 44 statements, level 4 - 96 statements. Each panelist was asked to select the 15 competencies in each level he/she felt to be the most important. There was a 87.2% return.
5. The Delphi Committee tabulated the returns and selected the statements which had been chosen by the largest percentage of panelists.
6. The third questionnaire was prepared. The statements were put in rank order from highest percentage to lowest percentage, retaining its statement number from the second questionnaire (to identify the fact that placement seemed to have no relationship to selectivity by the panelists). The percentage of previous choice was placed after each statement. Levels included: one-28 statements, two-25 statements, three-25 statements, four-29 statements. The panelists were requested to select the 10 they thought to be the most important. There was a 90.3% return.
7. The Delphi Committee tabulated the returns. The fifteen statements from each level which were chosen by the largest percentage of panelists were distributed.

Several panelists expressed concerns or questions pertaining to the survey. The Delphi Committee attempted to answer these.

Question - My experience in using the Delphi Technique makes it difficult for me to call this survey Delphi. What say you?

Answer - The basic technique we feel is the principle of the Delphi. However, from the beginning we have maintained that this is a modification made to get pre-conference input, not to make a statistically significant research study.

Question - Is there a tendency for items placed at the beginning of the list to be selected more often than those at the end?

Answer - As identified in the return of the second questionnaire this did not appear to be a problem.

Concern - I am quite concerned that the activities of the survey and the conference are going to deal almost exclusively with elementary and secondary teacher education which leaves those of us in post-secondary teacher education in the "cold".

Reply - While most of the items in the survey do relate more to the elementary and secondary, it is the desire of the Delphi Committee that the broader scope will be pursued at the conference.

Question - Why the repetition?

Answer - The committee bravely tried to stay neutral and worked with statements submitted including representative percentages of competencies, non-competencies and repetitions. We believe the panelists did an excellent job in the final draft.

Question - Many of these statements are not competencies. Don't people understand what competencies are?

Answer - The committee attempted not to evaluate. There is no question that some items as stated were not competencies. However, because of the technique of using highly dedicated panelists the final listings appear to have eliminated many non-competency statements.

Question 1

(Entry level - this is the point at which a college student begins his professional training)

The following competencies are listed in the order most frequently chosen from the third questionnaire. The number preceding the statement is the second questionnaire's placement. The numbers following the statement are the percent of respondents choosing that statement on the second and third questionnaire respectively.

18. Ability to change. (59%) (89%)
9. Ability to deal flexibly and creatively with language: to explain logically, to illustrate, to question, to elicit, to generalize, to give evidence of critical thinking. (50%) (89%)
33. Ability to accept others and respect them as individuals. (48%) (88%)
16. The ability to meet and successfully cope with unexpected situations and activities. (54%) (87%)
7. Ability to relate to students, parents, peers, administrators. (49%) (86%)
21. Health, stamina, and emotional resilience. (58%) (83%)
43. The ability to understand and appreciate values of individuals that may be very different from one's own. (47%) (81%)
28. Possess competency and the ability and desire to grow in the subject area he teaches. (39%) (74%)
34. Enthusiasm. (37%) (74%)
46. Dependability. (43%) (73%)
49. The ability to appreciate and show appreciation for a wide variety of individuals. (30%) (71%)
35. Organizational ability. (34%) (68%)
52. Must be competent in structuring learning experiences appropriate to objectives which are based upon the learner's needs, interests, and abilities. (38%) (67%)
3. High level of verbal competency in general, both written and oral, and a high level of verbal competency in the discipline the individual is licensed to teach. (39%) (66%)
32. Possess calm, poise, with evidence of self-control. (30%) (66%)

Question 2

(Pre-service level - this is the professional training prior to certification.)

The following competencies are listed in the order of most frequently chosen responses from the third questionnaire. The number preceding the statement is the second questionnaire's placement. The numbers following the statement are the percent of respondents choosing that statement on the second and third questionnaires respectively.

17. The ability to guide a variety of learning activities such as discussion, asking different types and levels of questions, disseminating information, using resources efficiently, etc. (58%) (89%)
41. Be able to accept every student as a worthwhile human being who has a right to develop at his own rate and in his own learning style. (49%) (88%)
56. Familiarity with learning theory and ability to apply learning theory principles of learning situations. (59%) (81%)
7. Knowledge of human growth and development at various stages of childhood and adolescence. (56%) (80%)
39. Methodological competencies - demonstrates effective utilization of material, human and procedural resources in order to achieve objectives. Demonstrates ability to control interaction and results in order to modify objectives and procedures. Can recognize mandate for change and organize to achieve it. (47%) (80%)
46. Should have a good preparation in subject areas which are his responsibility. (45%) (78%)
13. Enthusiasm for subject matter being taught. (49%) (76%)
9. Ability to formulate performance objectives and suggest appropriate learning tasks. (54%) (74%)
28. Should be able to select varied, interesting and exciting methods, techniques, and strategies in attempting to provide for good learning experiences beneficial to each pupil. (40%) (74%)
29. A teacher should be able to demonstrate, through extensive work with children, an ability to carry on two way communication with them. He should demonstrate also an ability to relate well with children of differing interests and backgrounds, and to recognize individual differences and prescribe appropriate activities for different children. (48%) (73%)
26. Select and direct learning experiences appropriate to the achievement of objectives and the development of generalizations. (28%) (71%)
21. Evaluate teaching processes (procedures) and instructional media on the basis of rationally developed criteria. (29%) (71%)
22. Create a congenial atmosphere in which exists self-imposed responsibility, self-imposed discipline, and student decision-making. (35%) (70%)
37. Ability to select appropriate concepts, principles, et.al. and organize for instructional purposes. (32%) (70%)
12. Can diagnose entry behavior and be able to write learning prescriptions for individuals as well as groups. (29%) (69%)

Question 3

(Inservice level - this is the certified teacher)

The following competencies are listed in the order of most frequently chosen responses from the third questionnaire. The number preceding the statement is the second questionnaire's placement. The numbers following the statement is the percent of respondents choosing that statement on the second and third questionnaire respectively.

17. Flexibility--including ability to change self, ideas, practices, goals. (59%) (92%)
4. Establishing and maintaining classroom environmental factors conducive to bringing about behavioral changes. (59%) (90%)
11. Analyze relevant information about learners and apply analyses in development and organization of teaching procedures which will facilitate learning. (57%) (89%)
41. Able to assume a leadership role as a director of learning, employing innovative and different approaches to the teaching-learning environment. (54%) (87%)
27. Assumes personal responsibility for his own professional growth. (52%) (87%)
26. Professional decision-making competency -- Through a knowledge of subject matter content, behavioral skills he is able to employ teamwork with colleagues enhance his own professional development, guide prospective teachers (trainees) and operate in a number of clinical settings; i.e. participate in innovative teaching-learning programs, promote inservice programs for recycling teachers, plan with professional organizations, etc. (51%) (85%)
12. Must have an understanding of how the educational activities of one's classroom relate to the total education of the child. (56%) (82%)
38. Ability to project subject matter to the level of student being taught. (49%) (80%)
3. Encouraging the use of evaluative procedures by learners and utilize evaluative results to improve the instructional program. (51%) (79%)
32. Know how to utilize and work with ancillary personnel (including aides). (45%) (76%)
18. Ability to promote critical thinking. (48%) (73%)
40. To apply some measure of progress so students can feel satisfaction in accomplishment. (30%) (72%)
44. Application of questioning strategies that lead to various levels of thinking. (45%) (68%)
8. Ability to evaluate fairly and on an individual basis. (31%) (65%)
14. Ability to manipulate curricula to make it appropriate to given aims and given target populations. (39%) (63%)

Question 4

(Teacher educator level - this is the professional teacher education college instructor.)

The following competencies are listed in the order of most frequently chosen responses from the third questionnaire. The number preceding the statement is the second questionnaire's placement. The numbers following the statement are the percent of respondents choosing that statement, on the second and third questionnaires respectively.

15. Be capable of accepting and adjusting to change--and serving as a change agent within the educational profession. (51%) (89%)
75. Must be master teachers themselves, able to demonstrate, not just talk about new methodology. (50%) (83%)
5. Demonstrate familiarity with and ability to communicate to others contemporary trends and issues in the subject matter field, its pedagogy, and education generally. (49%) (81%)
1. Not only has a realistic, positive self-image, but encourages students to recognize their own possibilities and limitations and capitalize on them. (48%) (81%)
2. Ability to work with pre-service and inservice teachers selecting from own background of preparation the knowledge and learning experiences that reflect an adaptation to changes in education and are pertinent to the learner's needs and the potential needs of the students with whom the learner (as teacher) works. (47%) (80%)
42. Be able to relate his subject in diverse ways to the experiences of the students and to the social, economic, and political issues of the day. (40%) (79%)
37. Be familiar with the resources of his subject field--books, films, records, professional associations etc. (45%) (75%)
58. Background of successful teaching experiences at the level of education in which he is preparing students to teach. (42%) (73%)
41. Be able to engage students in varied patterns for learning: large group, small group, individualized instruction. (39%) (71%)
84. Flexibility to try new ideas and concepts, such as competency based teacher education. (25%) (70%)
39. Be able to evaluate the soundness of research in his field. (26%) (68%)
21. The ability to show respect, concern and compassion for individuals. (32%) (66%)
22. The ability to analyze instructional procedures and draw conclusions about their effectiveness as they are used to achieve stated goals. (36%) (65%)
68. Uses diverse instructional strategies. (25%) (64%)
85. Competency to cooperate with others in the teacher education program such as subject matter professors, school teachers, educational foundations, people, etc. (29%) (60%)

Question 5

(Important Issues Facing Education)

The following 10 statements are the issues most frequently identified by the respondents on the third questionnaire.

8. How to finance education. (68%)
4. Alternative forms of education. (63%)
23. Competency based teacher education and certification. (61%)
13. Education for what? (what is the purpose of education and the schools?) (60%)
1. Bridging the gap between research and practice. (58%)
29. Preparing teachers who have the necessary sensitivities and group process skills that relate to racial, ethnic, economic conflicts and issues. The human relations and communication aspects of teacher education have been grossly overlooked in my view. (56%)
3. The role of the federal government in education today. (55%)
16. Determination of the appropriate role and use of field experience in teacher education. (55%)
21. Is it possible to do anything in teacher education which will make an actual contribution to the solution of our major socio-educational problems; e.g. institutional racism, the vast group of "turned-off" apathetic students (especially adolescents), the "mindlessness" of many school and teaching procedures. (55%)
22. Accountability with regard to school curriculum relevant to present life and 21st century. (55%)